

(b) End
adapting said at least one bent element to avoid premature mechanical failure;

2.5 mm.
wherein said at least one bent element includes a bending radius of less than about

(b)
26. (Amended) The method according to Claim 22, wherein said step of providing at least one waveguide further comprises the step of depositing an etch-masking layer on at least one glass sheet.

REMARKS

Applicants and the undersigned are most grateful for the time and effort accorded the instant application by the Examiner. The Office is respectfully requested to reconsider the rejections presented in the outstanding Office Action in light of the following remarks.

Claims 1-31 were pending in the instant application at the time of the outstanding Office Action. Claims 1, 12 and 26 have been rewritten, whereas Claims 9 and 31 have been cancelled without prejudice. Attached hereto is a marked-up version of the changes made to the claims by the current Amendment.

Claims 26-28 were rejected under 35 U.S.C. 112, second paragraph. Reconsideration and withdrawal of the present rejection are hereby respectfully requested. Claim 26 has now been amended to remove the term "said" before "at least one glass sheet," thus now obviating the rejection.

Claims 1-10, 12-15, 22 and 29-31 were rejected under 35 U.S.C. 102(b) in view of Ota et al. ("Ota"). Additionally, Claims 12 and 22 were rejected under 35 U.S.C. 102(b) in view of Yoshimura et al. ("Yoshimura"). Reconsideration and withdrawal of the present rejections are hereby respectfully requested.

Claims 9 and 31 have been cancelled by this Amendment, while their subject matter has been incorporated into independent Claims 1 and 12, respectively. Thus, Claims 1 and 12 have essentially been amended to indicate that the recited "at least one bending element" includes a bending radius of less than about 2.5 mm. Simply, such a feature is neither taught nor suggested by the applied art.

Generally, the aforementioned feature is discussed in the instant specification with relation to illustrative and non-restrictive embodiments of the present invention, in embodiments relating to optoelectronic fibers (see, e.g., p. 7, line 3 through p. 8, line 10) as well as waveguides (see, e.g., p. 9, lines 4-10) and is believed to represent a physical characteristic that is simply unattainable by way of conventional arrangements and processes, including those disclosed in the applied art.

Yoshimura has not been applied against either of Claims 9 and 31, whose subject matter has now been incorporated into Claims 1 and 12. Thus, it is respectfully submitted that, on this basis alone, amended Claims 1 and 12 fully distinguish over Yoshimura.

Turning to Ota, it is respectfully submitted that Ota does not at all contemplate a structure having a small bend radius as now claimed by Claims 1 and 12. In fact, Ota

appears to contemplate quite the opposite, that is, configuring their structure and bend radius to be large enough so as to reduce the stresses to be induced in the disclosed fiber.

In connection with Ota, the Office indicates that "it is inherent that the bending radius of the grooves is less than 2.5 mm [as seen in fig. 10a]." This is not understood. A very rough measurement made of the tightest bending radii in Fig. 10a reveals something more on the order of about 10 mm or more especially when assuming other dimensions specifically suggested in Ota (e.g., spacing of the tape fibers 59A and 59B at .25 mm and/or spacing of the fixing grooves 60 at .9 mm. This effectively destroys Ota as a valid reference against amended Claims 1 and 12.

It should be further noted, though, that it has been widely recognized in the art that a bending radius of less than about 2.5 mm normally involves excessive tightness and, thus, bending stress, which helps explain why such a bending radius has historically been avoided (see, e.g., p. 4, lines 1-7 of the instant specification). Indeed, Ota very much plays into this by consciously avoiding the very types of bending stresses normally encountered with bending radii of less than 2.5 mm in the first place. As stated in col. 10, lines 10-13 of Ota, "the fixing grooves 58A, 58B are smoothly curved, so that stresses are not concentrated in a portion of the optical fiber in the fixing groove, to prevent breakage of the optical fiber."

Quite in contrast, at least one presently preferred embodiment of the present invention permits the use of fibers or waveguides having tight bending radii (e.g., less than about 2.5 mm). In accordance with a non-restrictive and illustrative embodiment of the present invention, the tight bending radius indeed causes stress during the first steps

of fabrication. However, this stress may be relieved, e.g., during heat treatment. This is but one example of how various embodiments of the present invention make a bending radius of less than about 2.5 mm even workable in the first place. The prior art, including the Ota reference, does not teach, suggest, or allude to such a capability.

In view of the foregoing, it is respectfully submitted that Claims 1 and 12 are fully distinguishable over the applied art and are thus allowable. By virtue of dependence from Claims 1 and 12, it is thus also submitted that Claims 2-8, 10, 11 and 13-30 are also allowable at this juncture.

Claims 11, 20 and 21 were rejected under 35 U.S.C. 103 in view of Ota. Claims 23-28 were rejected under 35 U.S.C. 103 in view of Yoshimura. Reconsideration and withdrawal of the present rejections are hereby respectfully requested. As stated above, Claims 11, 20, 21 and 23-28 are believed to be allowable by virtue of dependence from Claims 1 and 12. Thus, it is respectfully submitted that nothing associated with the 103 rejections against Claims 11, 20, 21 and 23-28 can detract from such allowability.

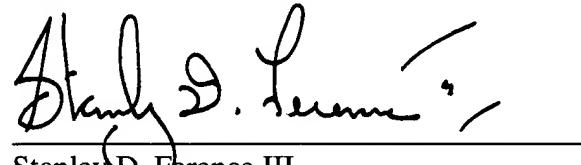
Claims 16-19 were indicated as being allowable if rewritten in independent form. It is respectfully submitted that these claims are already allowable by virtue of dependence from what is believed to be an allowable independent Claim 12.

The "prior art made of record" has been reviewed. Applicants acknowledge that such prior art was not deemed by the Office to be sufficiently relevant as to have been applied against the claims of the instant application. To the extent that the Office may

apply such prior art against the claims in the future, Applicants will be fully prepared to respond thereto.

In summary, it is respectfully submitted that the instant application, including Claims 1-8 and 10-30, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited.

Respectfully submitted,



Stanley D. Ference III
Registration No. 33,879

FERENCE & ASSOCIATES
129 Oakhurst Road
Pittsburgh, Pennsylvania 15215
(412) 781-7386, ext. 201
(412) 781-8390 - Facsimile

Attorneys for Applicants

MARKED-UP VERSION OF CLAIM AMENDMENTS

In the Claims:

Claims 9 and 31, currently on file, are cancelled herein without prejudice.

Claims 1 and 12 are rewritten as follows:

--1. (Amended) An apparatus for guiding at least one optical path for an optoelectronic transceiver, said apparatus comprising:
an input interface;
an output interface; and
at least one bent element being disposed between said input and output interfaces;
said at least one bent element being adapted to provide at least one optical path;
said at least one bent element being adapted to avoid premature mechanical failure;

wherein said at least one bent element includes a bending radius of less than about 2.5 mm.--

-- 12. (Amended) A method of forming apparatus for guiding at least one optical path for an optoelectronic transceiver, said method comprising the steps of:

providing an input interface;

providing an output interface; and

disposing at least one bent element between said input and output interfaces;

adapting said at least one bent element to provide at least one optical path;

adapting said at least one bent element to avoid premature mechanical failure;

wherein said at least one bent element includes a bending radius of less than about 2.5 mm.--

-- 26. (Amended) The method according to Claim 22, wherein said step of providing at least one waveguide further comprises the step of depositing an etch-masking layer on [said] at least one glass sheet.--